Claims

1. A method for operating an energy system, comprising the steps of:

providing an application coupled to the energy system;

measuring electrical characteristics of power drawn by the application from the energy system as a function of time;

processing the measured electrical characteristics to produce an energy spectra and a power spectra of a load profile presented by the application to the energy system; and

charging the energy system in accordance with the energy spectra and the power spectra.

2. The method of claim 1 wherein the measuring step includes the substeps of:

sampling the electrical characteristics at a predetermined rate to produce a series of time-based measurements; and

storing the series of measurements in a table.

3. The method of claim 1 wherein the step of providing an application coupled to the energy system further includes the step of forming an energy system so as to include a battery comprised of a plurality of cells.

4. The method of claim 3 wherein the forming step is performed by the substep of producing the plurality of cells so as to employ lithium chemistry salts.

5. The method of claim 2 wherein said measuring step includes the substeps of:

selecting the electrical characteristics sampled in said sampling step from the group comprising a voltage level and a current level; and

sampling the voltage and current levels.

6. The method of claim 2 wherein the processing step further includes the substeps of:

determining a first energy spectra from the series of time-based measurements using a first predetermined criteria;

determining a first power spectra from the series of time-based measurements using a second predetermined criteria; and

storing the energy spectra and the power spectra in a vector.

7. The method of claim 6 wherein the series of time-based measurements is a first time series and the load profile is a first profile, wherein said processing step further includes the substeps of:

computing a second energy spectra and a second power spectra using a second series of time-based measurements different than said first series; and

storing the second energy spectra and the second power spectra in the vector.

8. The method of claim 7 wherein said charging step further includes the substep of:

determining a weighting factor for the second energy spectra and power spectra using the first energy spectra and power spectra, as well as a plurality of previously determined energy spectra and power spectra stored in the vector;

assigning the weighting factor to second energy spectra and power spectra; and

defining a charging strategy based on the products of the second energy spectra and power spectra and the weighting factor.

9. The method of claim 6 wherein said step of determining said first power and energy spectra step further includes the substep of:

applying a least squares algorithm to said series of time-based measurements.

10. The method of claim 6 wherein said step of determining said first power and energy spectra further includes the substeps of:

providing a neural network;

storing said series of time-based measurements in said neural network; and

computing the average energy and power requirements of said series of time-based measurements stored in said neural network.

11. A method of operating an energy system comprising the steps of:

providing an application containing a dynamoelectric machine coupled to the energy system;

operating the dynamoelectric machine whereby power is drawn from the energy system;

measuring the voltage and current drawn by the dynamoelectric machine from the energy system as a function of time;

sampling the electrical characteristics at a predetermined rate to thereby produce a series of time-based measurements;

storing the series of measurements in a table;

processing the measured voltage and current to produce an energy spectra using a first predetermined criteria, and a power spectra using a second predetermined criteria;

storing the energy spectra and power specta in a vector; and

charging the energy system using the energy spectra and power spectra.

12. The method of claim 11wherein the step of providing an application containing a dynamoelectric machine coupled to the energy system further includes the step of forming the energy system so as to include a battery comprising a plurality of cells.

13. The method of claim 12 wherein the forming step is performed by the substep of producing the plurality of cells so as to employ lithium chemistry salts.

14. The method of claim 11 wherein the measuring step further includes measuring the voltage and current simultaneously.

15. The method of claim 11 wherein the series of time-based measurements is a first time series and the energy spectra and power spectra are a first energy spectra and a first power spectra, wherein said processing step further includes the substeps of:

computing a second energy spectra and a second power spectra using a second series of time-based measurements different than said first series; and

storing the second energy spectra and power spectra in the vector.

16. The method of claim 15 wherein said charging step further includes the substeps of:

determining a weighting factor for the second energy spectra and power spectra using the first energy spectra and power spectra, as well as a plurality of previously determined energy spectra and power spectra stored in the vector;

assigning the weighting factor to the second energy spectra and power spectra; and

defining a charging strategy based on the product of the second energy spectra and power spectra and the weighting factor.

17. The method of claim 11 wherein said step of determining said first power and energy spectra further includes the substep of:

applying a least squares algorithm to said series of time-based measurements.

18. The method of claim 11 wherein said step of determing said first power and energy spectra further includes the substeps of:

providing a neural network;

presenting said series of time-based measurements to said neural network; and

computing the average energy and power requirements of said series of time-based measurements presented to said neural network.

19. An energy system comprising:

at least one energy storage device to produce electrical power on a terminal thereof;

a means for measuring electrical characteristics of power drawn from the energy system by an application associated therewith;

a means for processing the measured electrical characteristics to create a load profile presented by the application to the energy system; and

a means for controlling the charging of the energy system in accordance with said load profile.

20. The energy system of claim 19 wherein said measuring means includes a voltage monitoring device and a current monitoring device configured to sample a voltage level and a current level of the power drawn by the application at a predetermined rate of time to produce a series of time-based measurements.

21. The energy system of claim 20 wherein said processing means includes a control processing unit (CPU) configured to store said series of time-based measurements and to determine a first energy spectra and a first power spectra of said series of time based measurements.

22. The energy system of claim 21 wherein said series of time-based measurements is a first series and, and wherein said processing means further includes said CPU to be configured to determine a second energy spectra and a second power spectra corresponding to a second series of time-based measurements.

23. The energy system of claim 22 wherein said controlling means includes said CPU being configured to assign a weighting factor to said second energy spectra and power spectra in order to thereby define an appropriate charging strategy.